

eRA Functional Architecture

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Agenda

- Overview of Functional Architecture
 - Draft
 - External Facing Applications Next
- Start thinking about 10/10 discussions

Status

- Inventory of functional components for each functional area
- Defined level 1 & level 2 use cases
- Defined flows
- Met with some user advocates + analysts
- Continue meeting with all advocates
- Publish first draft by 10/4

Strategic Functional Architecture

- Functional Architecture
 - End-to-end eRA functions
 - Functional Area Integration Points
 - Dependencies & Interfaces
- Reuse of Components
- Opportunities for business process integration
- Opportunities for business process improvements
- Opportunities for change in business processes

Integrated Architecture

■ Current

- IPF
- Close Out
- Commons
- IAR
- FSR
- NOT “SEAMLESSLY” INTEGRATED

■ Future

- Delivery of all content through integrated website “Portal”
- Integrated data structures
- User experience of one system

For each function

- Demonstrate one or more scenarios of a potential new process
- Show what are shared components
- What are the major issues

Pre-Submission

- Approval & funding needed to do the analysis
- RFA/PA development, management & publication – ENS
 - Routing
 - Approvals
 - Assignments

External Facing

■ ARA

- PI requests approval for a grant budget of >\$500,000
- PO Approves -> "Create" ARA
- PI submits electronic application
- ARA is matched
- PO is notified on ARA match

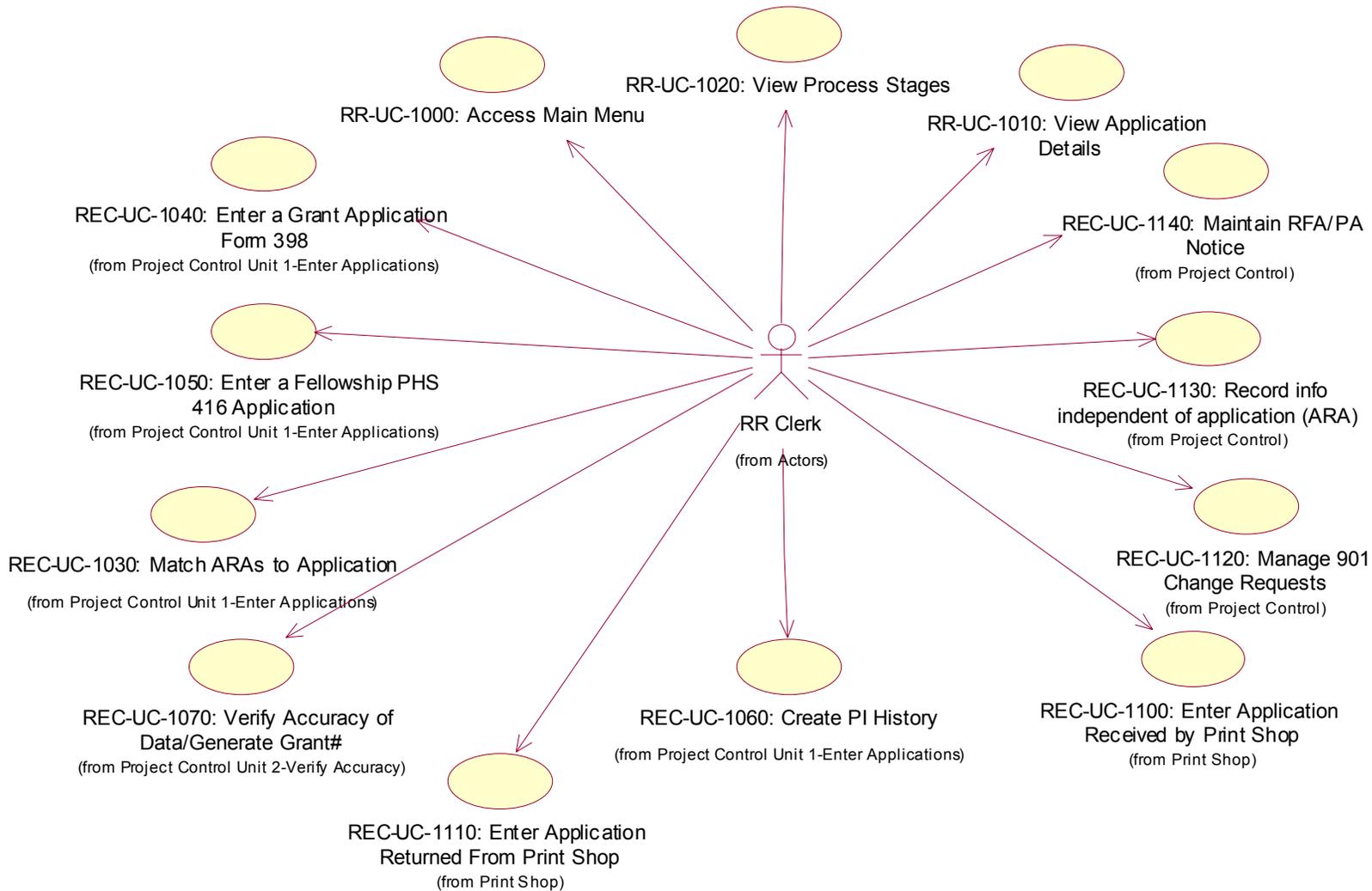
■ Grant Withdrawal

- PI submits an amendment
 - Withdraw earlier application & Notify appropriate people
- PI requests a withdrawal
 - Still in R&R ? -> R&R processes the request
 - In IC ? -> IC processes the request
- IC Decides to award an A1 instead of A2
 - Reinstate A1 and withdraw A2

External Facing

- Supplemental Fund Request
 - PI requests supplemental funds
 - Request goes to IC PO
 - PO approves and it routed to GS
- No Cost Extension
 - PI requests no-cost extension
 - Request goes to IC PO
 - PO approves and it routed to GS
- Re-budgeting Approval (?)
 - Approval for re-budgeting of awarded money (PI needs this approval to reallocate money e.g. travel\$ to salaries\$)
- Submission of latest information on other support before the award – needed by GM and supplied by PI
- General Correspondence & Request for information

Receipt



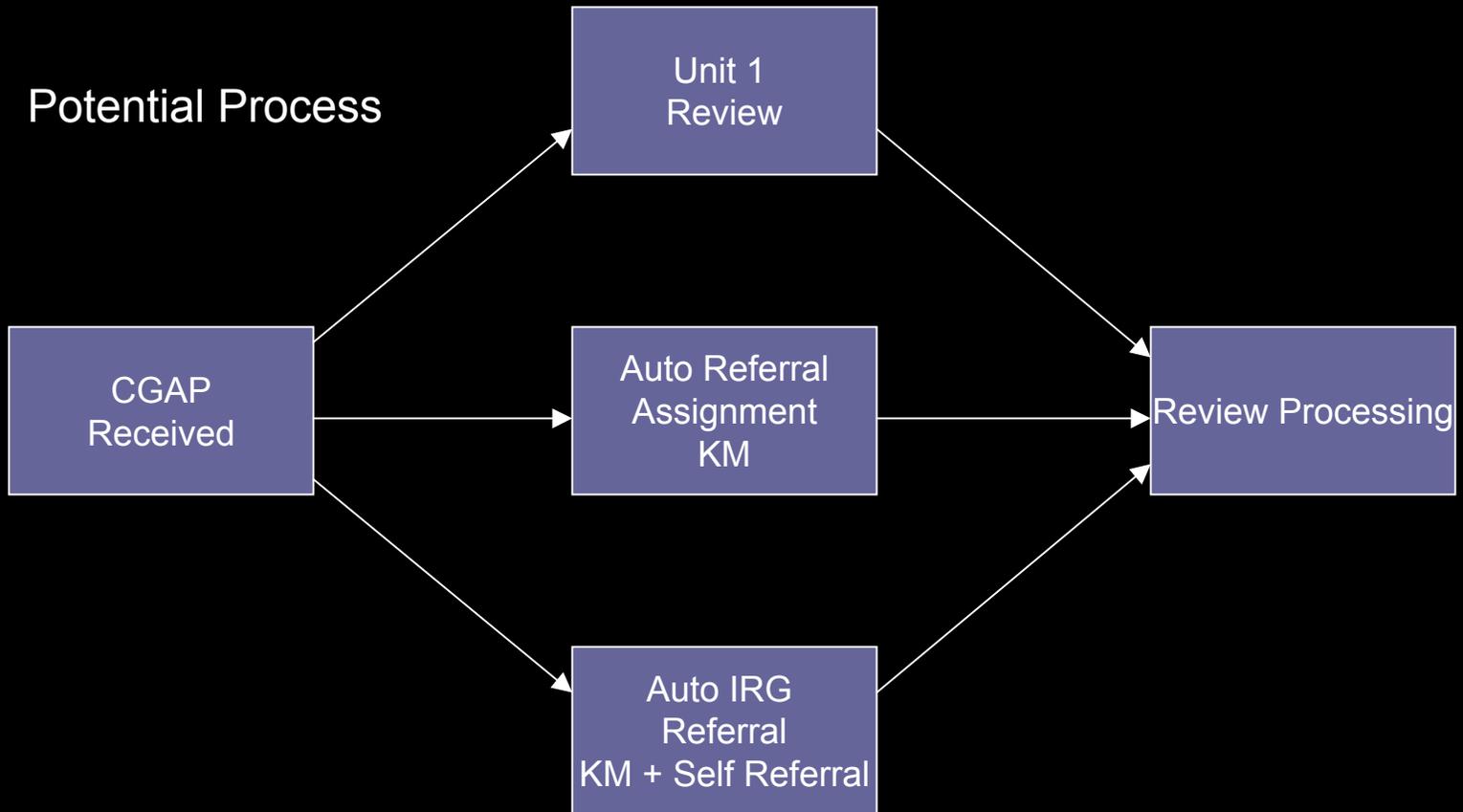
Receipt

- **Current Process (Following steps are sequential)**
 - Paper Application is entered in IMPAC II
 - Referral Officer assigns application to IRG
 - IRG chief assigns SRA (?)
- **PI/Inst. Submits Electronic Stream**
 - Validations are performed in Commons
 - Errors and Warnings are displayed
 - PI makes corrections & successfully submits
- **New Process - Following steps can happen in parallel**
 - Receipt: Review the electronic application
 - Auto referral to IRG Chief – Using KM + Self Referral
 - Auto referral to CSR Referral Officer- Using KM + Self Referral
- **Issues**
 - Is XML stream one application at a time? Or batch?
 - Paper process will still continue

Current Process



Potential Process



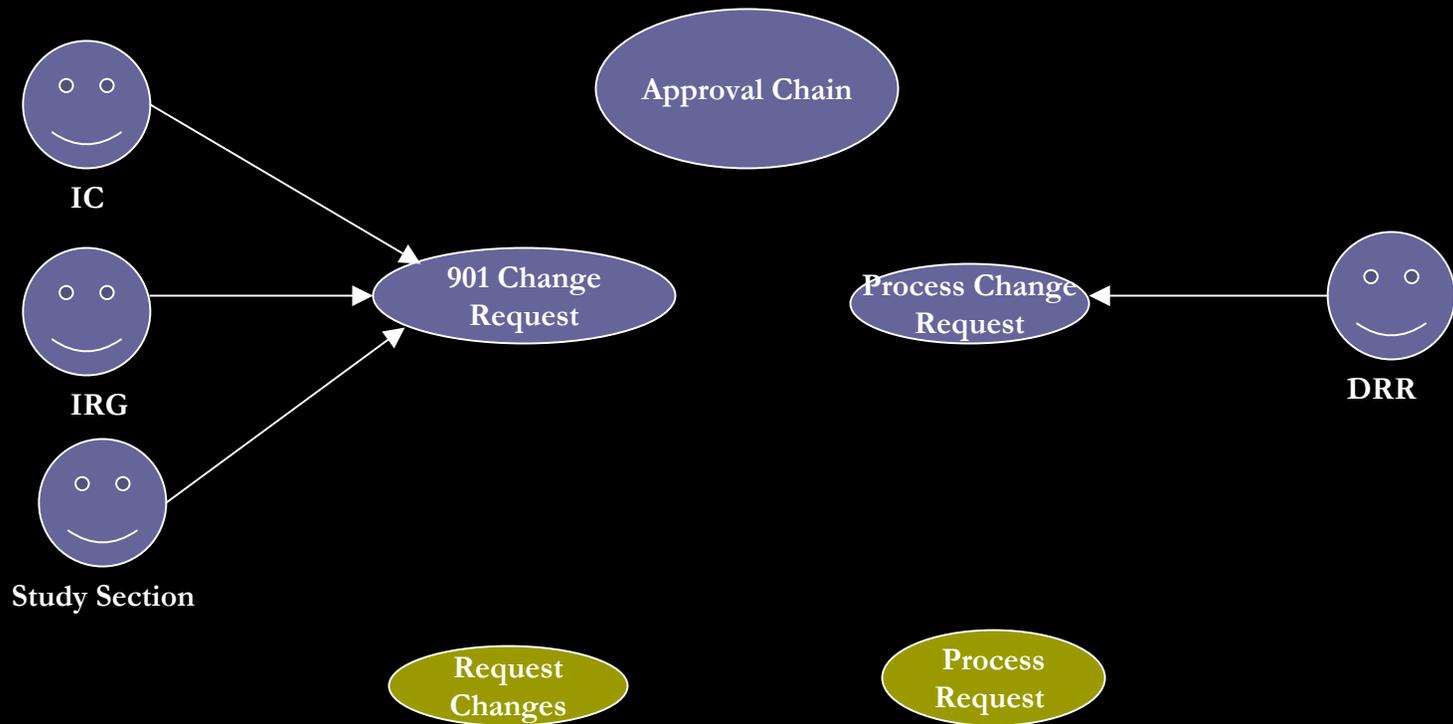
901 Changes

Shared Functions

- Request – Response system
- Approval
- Routing & workflow

Issues

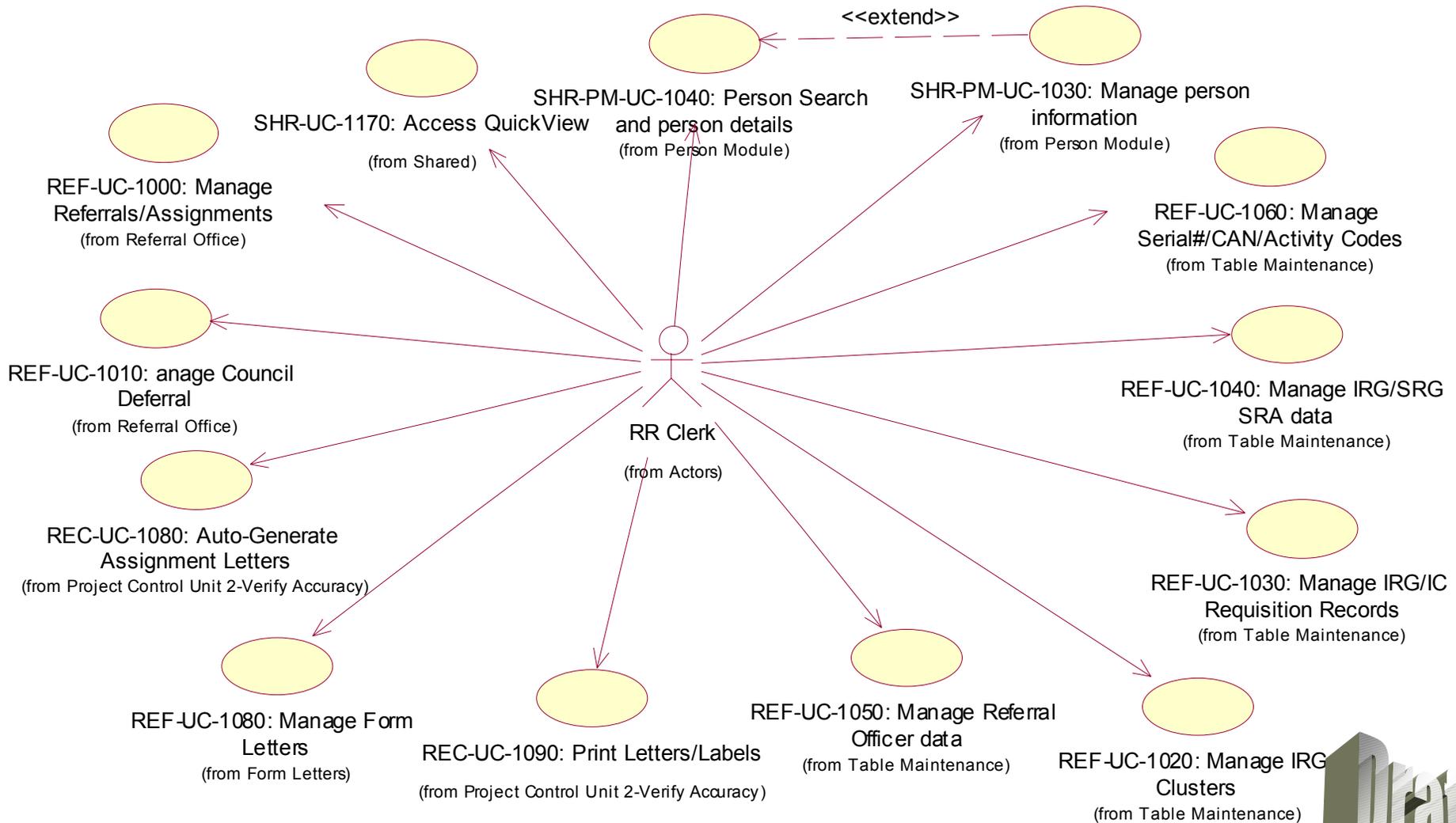
- What changes have to be approved by DRR?



Receipt Issues

- No agreed on electronic receipt process
- Just-In-Time grants: These grants are not complete and if it passes review then the PI provides more information. How do we implement this?
- PI can request changes after submission
- Changes may need to be reviewed by
 - CSR-RO (If grant is still there)
 - SRA if it is under review
- NIH (CSR-RO, Receipt, IC PO) can ask PI for missing information – e-Notification?
- PI can submit the missing information electronically

Referral



Referral

- RO refers to Chief
- IRG Chief accepts or declines the referral

- RO refers to IC
- IC RO accepts or declines the referral

- Routing
- Assignment
- Approval

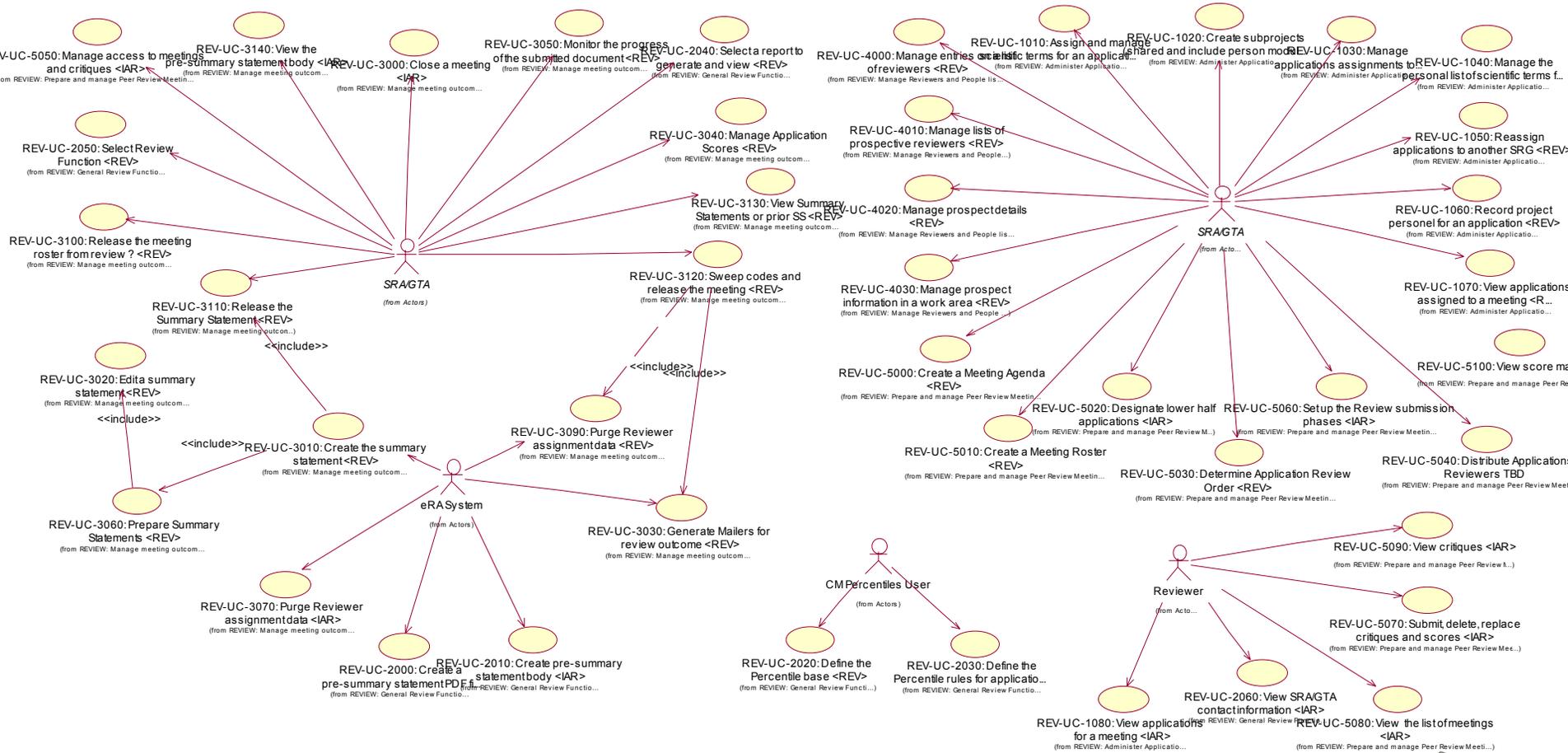
Program Management

Program Management

- Portfolio Management (multi-level portfolio)
 - Grant Tracking (current + anticipated)
 - Notification based on events
 - Coding
 - Approvals
 - Routing
- Interaction with Referral
 - Accept, Decline referral
- Interaction with GM
 - Approval & Checklist

DEA (?)

Review



Review: Technologies and Opportunities

- Workflow and notifications
 - Automate change requests to applications as part of the overall application to grant life cycle
 - Management of SRAs and GTAs workloads
 - Meeting and change notifications of all kinds
- Electronic applications receipt
 - Obtain key personnel: better COI, other support
 - Store CVs of key personnel: increase K database for reviewer pool, encourage new investigators
- Knowledge Management tools and databases
 - Match research goals and SRG science area
 - Match research goals to previously referred apps and learn to improve referrals to an SRG science
 - Match research goals and reviewer CVs: facilitate reviewer selection
 - Balance and optimize workload of reviewers based on Knowledge match
- Portal and collaboration tools: Virtual meetings
 - One place to go for all aspects of the NIH business (same for trainee, PI, Reviewer, Consultant)
 - Non concurrent review: Collaboration area for a meeting - post application, critiques, other papers, links to other research as part of the collaboration area for one meeting and set of reviewers.
 - Concurrent review: Internet based presentations, Internet based video conferences, Chat room technology, remote viewing for Program and non voting participation
- Wireless and Internet technologies
 - Status changes, breaking news posted and accessible
 - Access to all applications in the meeting
 - PDA or E-Book based software: In meeting scoring, COI record and roster attendance record.
 - Vouchers-travel expenses on line submission

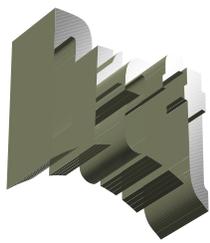
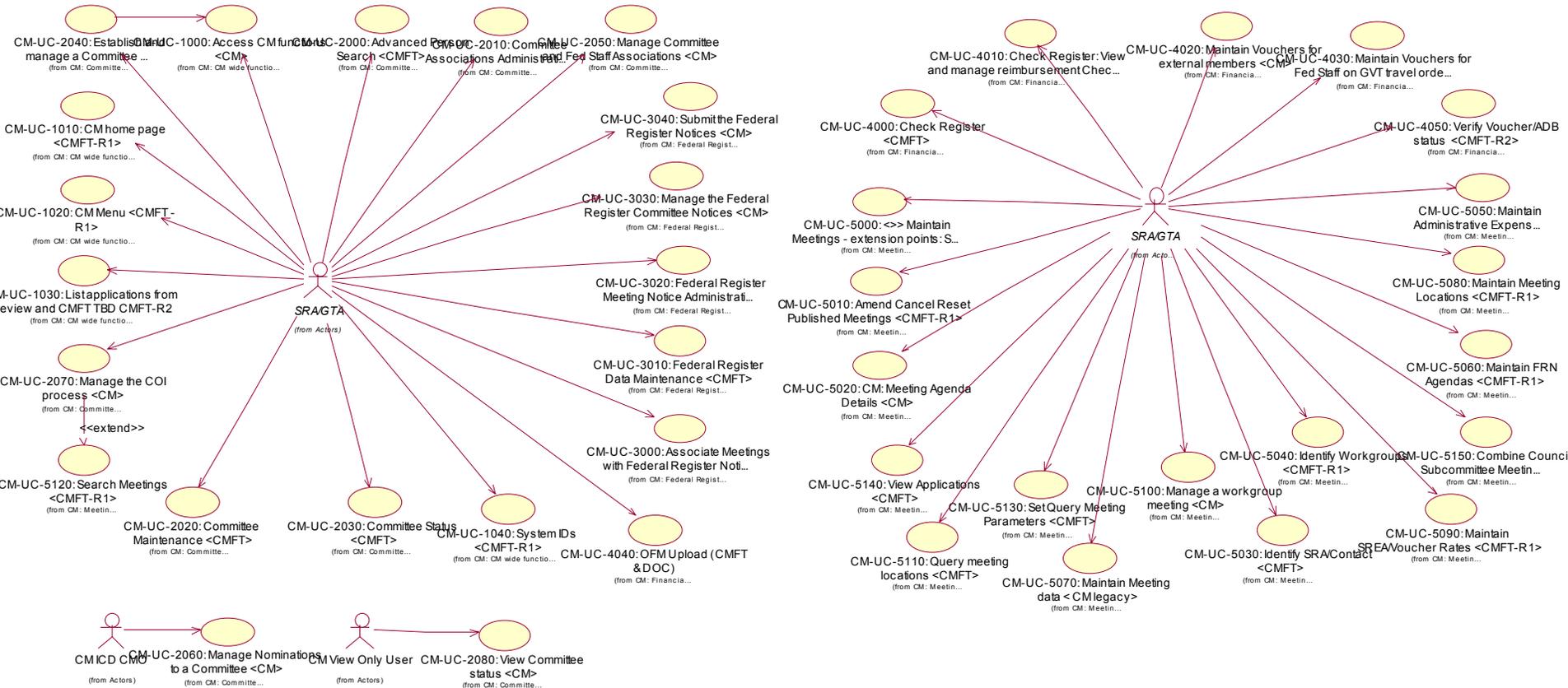
State the Business Goals

- NIH to provide the capability to hold virtual meetings as an optional service to the SRA
- All change requests submitted, tracked, approved, notifications on-line
- Expedite referral with self referral and KM tools
- Increase the NIH knowledge pool about available scientific expertise of reviewers, key personnel
- All travel administration on line.

Develop a scenario

- Extended IAR scenario
 - Set up a collaboration area for the meeting
 - SRA manages meeting phases as in IAR
 - Still send out CDs and agenda
 - Grant access controls with IAR username/password
 - eRA posts applications with access controls (Implement COI restrictions as in IAR)
 - Reviewers post critiques and fill in scores
 - Reviewers post papers, references to other research to justify critique and score
 - Meeting: None, Chat room, On-line slide presentation by primary discussant, Video and/or phone conference
 - Reviewers fill in COI statements on line
 - Reviewers see scores, streamlining statistics and bottom half list
 - Reviewers change critiques and scores and submits final

Committee Management

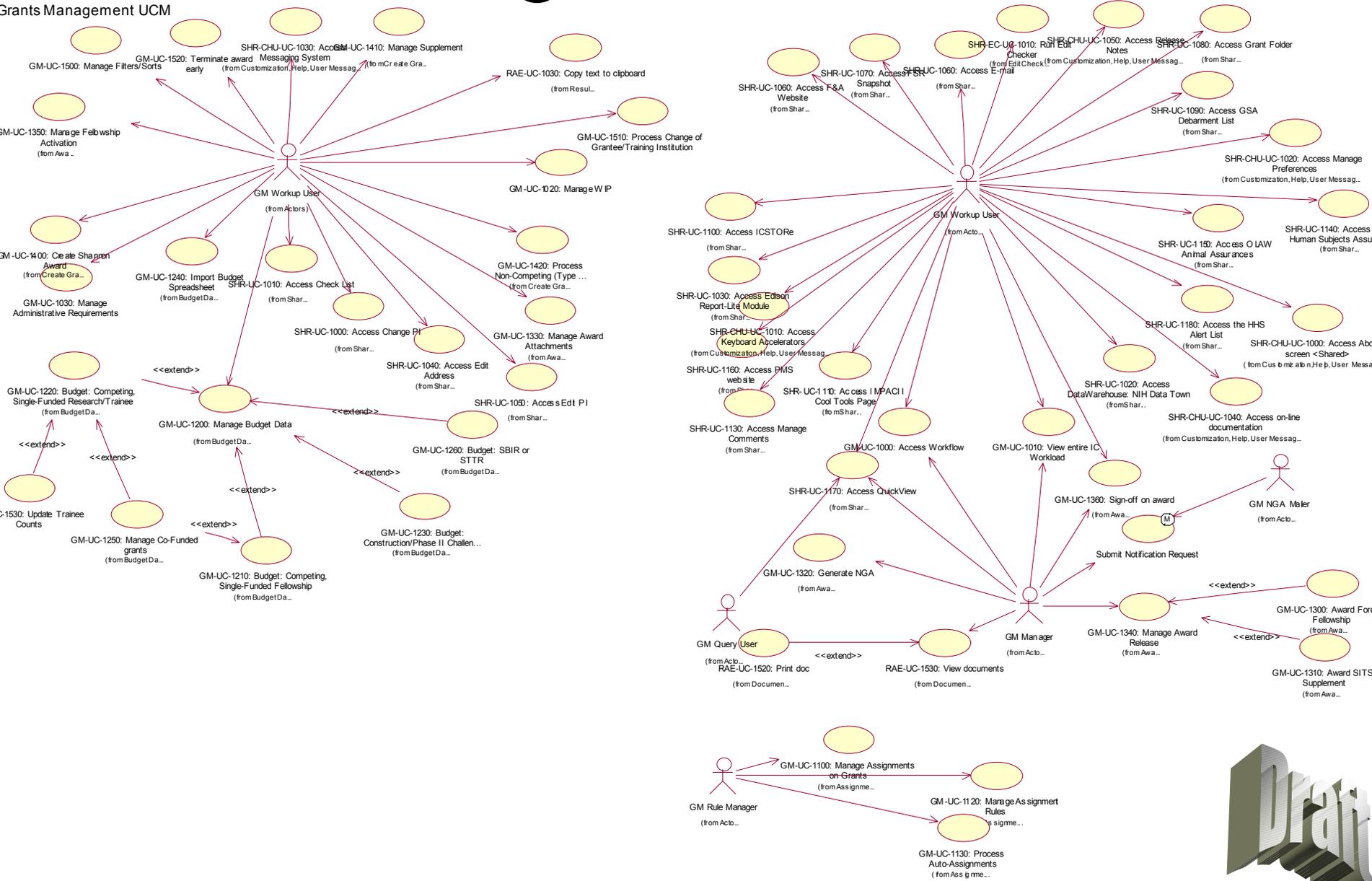


Committee Management

- Opportunities to streamline and expand functions
 - Chartering support and document management
 - Travel arrangements, fee payments, reimbursable, advances either on-line or part of NBS, 1099 information generation
 - Lots of workflow and approval cycles
- **Issue:** How to prepare slates and charters electronically but not transform the CMO office into the print shop? (Electronic sign-off from NIH Director ? HHS ? The White House ?)
- Integration of systems between administrative and functional aspects of the meeting management:
 - Same meeting, same people, 2 separate systems and business areas?
 - Put all meeting related functions under one team?
- No ad-hoc reporting capability or analytical capability
- People-centric rather than application-centric, needs special consideration

Grants Management

Grants Management UCM



Finance & Budget (?)

RAE

■ Issues

- Over six custom-built reporting tools
- Same components needed in many different business areas
- No formal support for ad hoc query tools

RAE

- Leverage popular user interface
- Common functionality
 - Customizable hit-list
 - Sort by column header
 - Filter
 - Save hit-list definition
 - Export hit-list
 - Multiple hit-list views – at the choice of user
 - Ability to navigate to detail

CGAP Issues

- How do we handle partial changes?
- Do project personnel need person profile?
- Desk logistics need to be looked at to process the grant electronically (two screens?)
- Policy for electronic approvals & signature
- Annotations
- Selective printing
- Versioning

Common Components

1. Common modules, stand alone applications
 - A. Generic
 - B. Business specific
2. Common building blocks
 - A. Generic
 - B. Business specific
3. Common techniques, designs, patterns
4. Common standards
5. Data Architecture

1A- Common modules: Stand alone applications

Generic

- **Document management:** Receipt, scanning, load, transformation, Storage, search and retrieval, CD ordering and print orders
- **Integrated, customizable, collaborative Web site (portal)** internal and external
- **Workflow management:** Assignments of work, routing, workload management, approvals, notifications, custom notifications, object status monitoring and alerts **ELECTRONIC APPROVALS AND SIGN OFF**
- **Help system:** On-line context sensitive help, help desk contact or chat, bug tracking, help request tracking and status reporting
- **Account and user management:** User account set up, role and permission management, Single Sign-on
- **E-mail service and interfaces to e-mail**

1B - Common modules: Stand alone applications

Shared business components

- **People Management:** People module, Profile, Registration, non-profile people (prospects, project personnel ?, trainees ?)
- **Grant Update module**
Service and change requests (ARA, 901, IRG change, no-cost extensions, etc)
- **Portfolio tracking** (PO, Program area, Division, IC, current grants, anticipated applications from RFA PA or individual PIs, duals, areas of interest)
- **Coding of grants**
- **Assignment of Federal Staff**
- **All system interfaces to external systems**
- **Travel and reimbursable expense management?**

2A -Common Building blocks

Generic and infrastructure

- Framework (audits, logs, single sign on ...)
- Business rule checker
- Generalized check list
- Menu system
- Report selection, launch, viewing and report storage (overlaps with doc management)
- Replication and bridges
- Reporting database and functional area reporting schemas (star schema by business area ?)

2B - Common Building blocks

Business specific

- Managing addresses
- All APIs
- Create grant
- Create sub-projects
- Maintain grant budget data
- ORI sanctions, COI identification and alerts

3 - Common Building blocks

Potentials for designs, code

- **Assign a person to a grant** (trainee, reviewer, PI, key personnel, supportee, GM, reviewer in conflict, AO, SO ...)
- **Assign a person to a meeting** (reviewer, fed staff, program person, GTA, consultant ...)
- **Assign an organization to a grant** (IC, Institution, Division, IRG ?)
- **Others**

4 - Common standards

- **Graphical User Interface:** navigation, presentation layouts
- **Single architecture**
- **Analysis, design and development standards**
- **Deployment strategy**
- **Single Configuration Management**
- **Centralized requirements management**

5 - Data Architecture

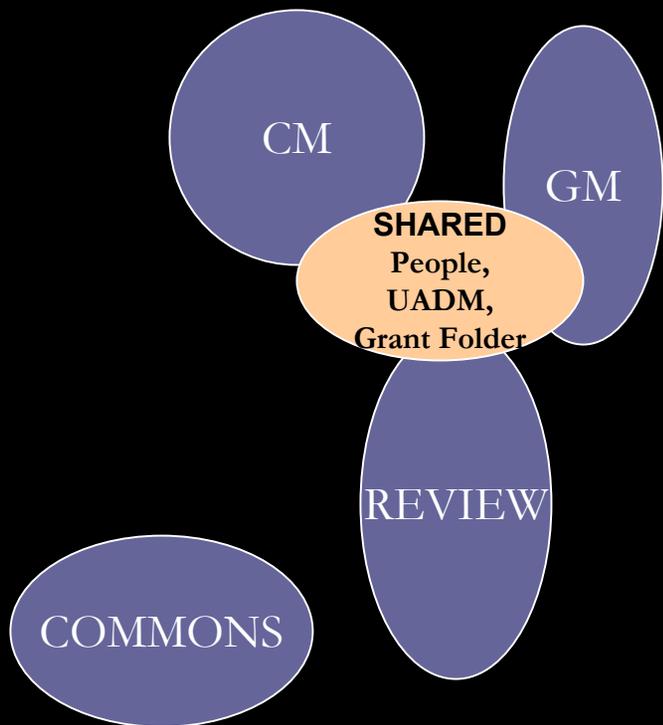
- Single OLTP schema – internal and external
- Separate reporting, analysis schema and instance
- Separate services for documents, portal and collaboration areas

Examples of Building Block Reuse Workflow

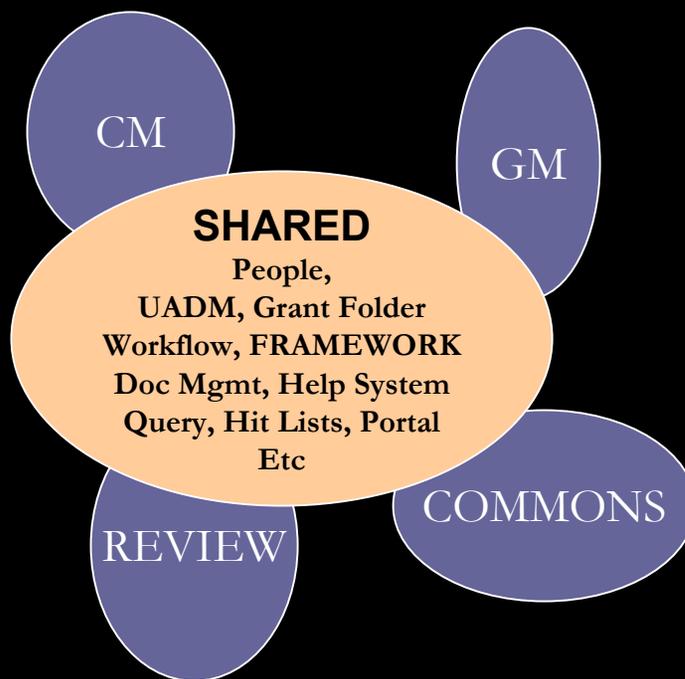
- **The Grant Process** as a whole (pre-receipt to closure)
- Grant process within each business area (Data entry validation in RR, Status of review, approvals within GM)
- **All change request processing and approval flows**
- Appoint a trainee to a training grant and approval process
- Appoint a SITS trainee and approval process
- Nominate a person to a committee and approvals
- Process a nomination slate (5 to 7 levels)
- Route and approve an e-SNAP
- Approve an expense voucher
- Track a COI waiver
- Track the financial disclosure statements request and receipt for a committee member
- Track data entry, print shop, quality assurance steps in Receipt
- Track break out, referrals and SRA assignments in Referral, intra IRG and intra IC
- Track workloads of SRA, GTA, GMS, PO, Reviewers, etc
- Coding status of CRISP terms and abstract processing
- User requests to help desk
- ~~Grant processes extended into ICs work processes~~
- Others....

Morphing the System Make Up

Current System Make up

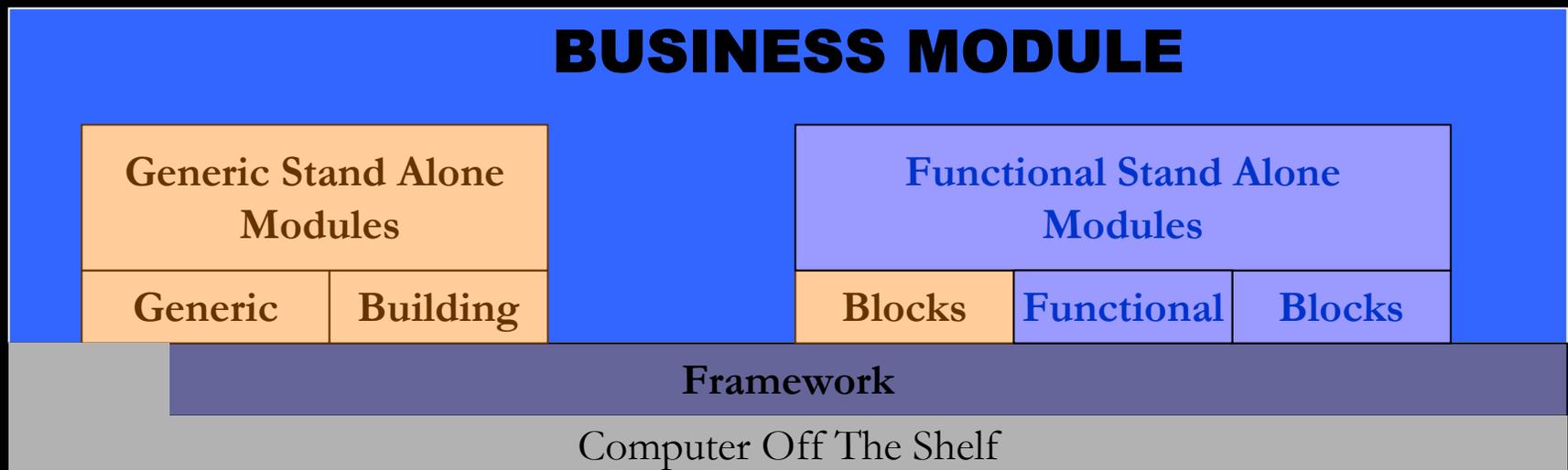


Target System Make Up



Common Components

- Re-use by design
- Plan and schedule for common components



Next Steps

- Draft Functional Architecture out by 10/4
- Agenda for 10/10 retreat sessions
 - CGAP & Paperless processing
 - Knowledge Management
 - Wireless technology
 - eRA Portal
 - Collaboration

Comments?
